

Initial	Date
CW	8-7-97
RF	8/7/97

BA WTR
WR ND
Mail Stop 60189

AUG 07 1997

Memorandum

To: Project Leader, Tewaukon National Wildlife Refuge
From: Chief, Division of Water Resources, Region 6
Subject: 1996-97 Annual Water Use Report/Management Plan

The subject reports for Tewaukon, Lake Elsie, and Storm Lake National Wildlife Refuges have been reviewed and approved as submitted. Updated Short Form formats are attached for Lake Elsie and Storm Lake NWR's and are being sent via ccmail for use in future reporting.

Thank you for the timely submission of this report. I apologize for the delay in providing this review.

Attachments

12/ CHERYL C. WILLIS

bcc:WR rf
RO rf
GARD, ND/SD (Shupe)
WTR:LCo:lc:3/18/97
w:\wateruse\tewaukn.97



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Tewaukon National Wildlife Refuge Complex
9754 143½ Ave SE
Cayuga, ND 58013-9764

MEMORANDUM

March 5, 1997

To: R&W, ND Refuge/Fisheries Supervisor (60130)
Denver, CO

From: Refuge Manager, Tewaukon NWR Complex (62660)
Cayuga, ND

Subject: 1997 Annual Water Management Plan and 1996 Use Report

1. List of Water Rights

Declaration of Filing dated September 1, 1934, for Lake Tewaukon and East and West White Lake (including Cutler Marsh), 7,198 acre-feet storage, 4,251 acre-feet seasonal from Wild Rice River.

Declaration of Filing dated September 1, 1934 claimed 397 acre-feet storage and 312 acre-feet seasonal use for Clouds Lake (Pool 8) now called Hepi Lake. Listed on the same sheet as Lake Tewaukon/White Lake, as per RO(EN) Marshall Fox's 11-14-83 memo. Water use in pools 5 through 10 is covered under this right, with Hepi Lake to be drawn down to fill these pools.

Permit #1261: 4852 acre-feet storage and 2287 acre-feet seasonal use, for a total of 7139 acre-feet. This permit covers additional storage and seasonal use in Lake Tewaukon, Cutlers Marsh and West White Lake; 409 acre-feet seasonal use to replace water to be diverted from the watershed by Sargent County Water Conservation District project; and total storage and seasonal use for Pools 3 and 4. Priority date December 28, 1964.

Tewaukon NWR #1262: 1,130 acre-feet yearly (635 acre-feet storage and 495 acre-feet seasonal use) for Sprague Lake, dated December 28, 1964, diversion from an unnamed creek in the SE1/4NW1/4, Section 2.

Tewaukon NWR #1263: 686 acre-feet yearly for Mann Lake (236 acre-feet) and Horseshoe Slough (450 acre-feet) dated December 28, 1964, diversion from the Wild Rice River.

Tewaukon NWR #3816 Nickeson Tract: 571 acre-feet (474 acre-feet storage, 97 acre-feet annual use) for the Nickeson Bottoms, a tract jointly owned by the ND Game and Fish Department, US Bureau of Reclamation and USFWS. Diversion is from the Wild Rice River, W 1/2 Section 27, T. 130 N., LTL, R. 54 W. Priority date August 15, 1985.

2. Water Use - 1996

The Wild Rice River, LaBelle Creek, Frenier Dam Outlet and Sprague Lake Creek flowed well above average this year, exceeding management levels in all wetlands. The Wild Rice River continued a steady flow the entire year. It is believed that the cleaning of the Crete-Cogswell drain in 1984-85 plus average snow caused this increased flow in the Wild Rice River. Most wetlands on the Refuge were filled by the above normal runoff, and they held water into freeze-up.

Pool 1 (Lake Tewaukon): Inflow began on February 9 from LaBelle Creek and overtopped the township road on February 10. On May 19, outflow peaked at 1150.40. A drawdown began on June 2 to facilitate draining of Pool 11 which was flooding County Road 5. The lowest level occurred on July 2 at 1146.76. On August 25 water levels were increased to maintain the fisheries over winter. Snow geese (10,000), Canada geese (12,000), and mallard (10,000) numbers peaked on Lake Tewaukon on 11/1/96. Adequate water and available food in crop fields throughout the District distributed the flocks of geese. The lake was frozen at 1148.00 (which is full pool) on November 14. The river continued to provide an intermittent flow under the ice after freeze up.

Parker Bay (east end of Lake Tewaukon): Inflow from LaBelle Creek flowed into Parker's Bay and raised the water level to about 6 feet. The high water from LaBelle Creek over-topped the East Dike of Lake Tewaukon and the township road several times during spring flow. By late July the pool was at 2 ½ feet.

Pool 2 (Cutler Marsh): This pool filled rapidly due to flooding received runoff from the Wild Rice River and West White Lake. It reached 1153.75 on May 22, 1996. Boards were pulled on May 27 to facilitate the removal of water from Pool 11 due to flooding of a County Road. Due to the high water runoff there was still incoming flow into this pool making it difficult to drain. On August 25 water levels were slowly increased to provide water to Lake Tewaukon for fisheries management. Pool 2 received the most snow goose use in the fall of 96 with 10,000 birds sitting on the pool on 11/1/96. Close proximity to food plots made the pool an attractive resting site. At freeze-up (November 12) the level of this pool was 1150.85.

Pool 2A: Pool 2A was kept as dry as possible in order to repair the 2A inlet dike with NAWCC funds. It was decided not to include this project in the NAWCC projects. Plans are to accomplish this repair in 1997 by force account. Water from spring runoff naturally maintained the pool at a depth of approximately 1154*.

Pool 3 (Maka Pool): Pool 3 peaked at 1155.70 on April 11. On April 23 the pool was drawndown to 1153 to facilitate cattail growth on the Ducks Unlimited (DU) dike for erosion control. It was raised in August to cover the cattail roots. Pool 3 & 3A saw over 2500 pintails on 10/18/96. At freeze-up the level of this pool was 1153.82.

* Approximate water level readings are based on recently completed surveys of pool depths which were mapped for refuge use. This is the only method available at this time. All pools are scheduled to have gauges installed in 1997.

Pool 3A: This pool was maintained at approximately 1154 until August. An attempt was made to drain the pool to facilitate Pool 3A dike repair. After completion of the repair (placement of riprap) in September the pool was reflooded to approx. 1154 where it remained until freeze up.

Nickeson Bottoms: Pool levels were high at 6 ft approximate depth. Waterfowl use in 1996 was low, only 1 goose brood was seen in the spring. Lack of emergent vegetation caused by deep water made the area unappealing to over water nesters and as brood water.

Pool 4 (River Pool): This pool remained fairly constant at 1160 though out the year. It peaked at 1161.60 on May 23. Level at freeze up was 1159.98.

Pools 5, 5A, 6, 7, 7A: Pool 5 remained dry all year due to damage of the dike from high water levels in 1996. All other pools were full at the beginning of the year, but after the Hepi outlet to the north was washed open, pool levels dropped considerably due to lack of water from Hepi and loss of water from the damage to Pool 5. Pool 5A filled to approximately 1165 then dropped to 1162 at freeze up. Pool 6 filled to approximately 1168 and dropped to 1165 at freeze up. Pool 7's highest water level was approximately 1178 and dropped to 1172 during the summer. Pool 7A water level dropped through out the summer after reaching a peak level of 1176.20 on March 19. Pool 7A has a active rookery composed of great egrets, great blue herons, cormorants, and black-crowned night herons. In the fall of 1996, after Hepi Lake went dry, Pool 7A saw large numbers of puddle ducks (over 10,000 were observed on 10/18/96) utilizing the shallow water and vegetation as a resting and feeding area. 2,000 pintails were observed in 7 & 7A on 10/18/96. At freeze up Pool 7A was estimated to be at 1174.

Pool 8 (Hepi Lake): A maximum depth of 8 feet was reached on June 7 which reached the top of the dike. Around July 15 water pressure from continued high water forced the silted, nonfunctioning north structure open resulting in a drastic drop in the pool level. The level dropped to approximately 1170 and remained there (a depth of approximately 0.10 feet). Hepi Lake must be at a high water level to allow for flow into Pools 7A, 7, 6, 5 and 5A. Due to this extreme release no water was incoming to these pools from Hepi after July 15.

Pool 9: On July 15 all water from Pool 8 ran into Pool 9 increasing the level from 3 1/2 feet to 10 feet. It then proceeded to flow into the Wild Rice River through an existing pipe. Pool 9 saw few broods in 1996 due to lack of emergent vegetation. Pool 9 was frozen by 11/1/96 so it saw no use by migrating snow geese. At freeze up it was at 3 1/2 feet.

Pool 10: This pool reached a depth of 6 ft in May. Due to high water, management goals were not accomplished in this pool (desired depth of 2 1/2 feet then dry by August as semi permanent marsh). Pool 10 saw few broods in 1996 due to lack of emergent vegetation. Pool 10 was frozen by 11/1/96 so it saw no use by migrating snow geese. The level at freeze up was 4 feet.

Pool 11 (West White Lake): This pool filled rapidly due to extreme water runoff conditions. It peaked at approximately 1152.70 on June 12 and flooded out County Road 5. At the request

of the County boards were pulled from Lake Tewaukon to Pool 2, through Pool 12 to drop the water level in Pool 11 and dry out the road. It was dropped to approximately 1147.60 on August 25. On August 25 the other pools were raised to prepare for freeze up. Pool 11 froze at approximately 1147.67.

Pool 12 (East White Lake): On June 12 water levels topped the dike between Pool 11 and 12. All boards were pulled between the two pools to facilitate lowering of Pool 11 to get water off the County Road. Pool 12 was at the same level as Pool 11 at freeze up since the boards were not reinstalled.

Pool 13 (Mann Lake): This pool contained 5 to 7 feet of water at freeze-up. Natural run-off prevented us from lowering this pool to achieve maximum duck use.

Pool 14 (Sprague Lake): Pool reached a peak depth of 11.49 feet on March 16 which pushed water over the township roads for two weeks. Operating level was achieved late in the year due to high water in the spring. The pool froze on November 8 at 7.80 feet. Due to lack of run off in the fall and evaporation loss, the pool could not be raised to the optimal level for overwintering of the fisheries.

Pool 16 (Horseshoe Slough Group): These pools were full at the end of 1995 so no water was added in 1996. When the Wild Rice River water level dropped, an attempt was made to drop Pool A to fix the Banish "J" Dike. However due to excessive runoff it was not accomplished. The pools in the Horseshoe Slough Unit saw high numbers of broods due to the good ratio of open water to cattails. They also provided shallow feeding areas for broods. 5,000 snow geese, 6,000 Canada geese, and 8,000 mallards used the Horseshoe Slough Unit until about the middle of November when the pools froze over.

3. Impoundment Data

Please see the attached chart for capacities for each pool at various elevations. No formal inflow/outflow records were maintained. Please see Section #2 above for elevation changes for the various pools.

4. 1997 Plans

The following plans for the water levels in the pools are the best levels for attaining management objectives. However, with damage to dikes and expected high water, is not expected that we will attain them this year. All efforts will be made to manage pool levels at desired elevations without incurring additional damage to dikes from high water. Some of the pools (especially Pools 5A, 6, 7, 7A, 8, 11, and 12) are already at low levels. This will make it easier to handle large inflows of water into the system, but 90+ inches of snow pack will result in additional flooding and damage in 1997.

Pool 1 (Lake Tewaukon): Maintain 1148.0 Mean Sea Level (MSL). This elevation will help to maintain the sport fishery habitat.

Parker Bay (east end of Lake Tewaukon): If possible, lower to maintain a 2½-3 foot depth for waterfowl production.

Pool 2 (Cutler Marsh): Try and maintain the pool at 1152.0 MSL to flood dense cattails in the west end without killing vegetation in the lower end. Small amounts of water will be released in May-August to help facilitate shorebird use. Keep Pool 2 South of DU dike at 1150 to promote cattail growth for erosion control.

Pool 3 (Maka Pool): Maintain pool at 1151.0 to facilitate new growth of cattails on DU cross dike. Stabilize water as quickly as possible before over-water duck nesting is initiated. If needed, supply water to Pools 2A and 3A.

Nickeson Bottoms: Cattails have been brought under control, however an attempt must be made to try and lower this pool from approximately 6 feet to a depth of 3 feet.

Pool 4 (River Pool): Maintain approximately 1160 MSL for duck nesting, especially over-water nesting, and stabilize as quick as possible before April 15. Maintain muskrat populations by keeping this pool at this elevation.

Pools 2A, 3A, 5, 5A, 6, 7, 7A: If possible, fill to maximum depth to flood cattails and maintain water through out the summer. The pools will dry out rapidly through an average summer due to evaporation. Hepi Lake north outlet will need to be temporarily plugged to allow Hepi Lake to fill high enough to pass water to these pools. For Pool 7A's active rookery water levels should be managed to keep 1- 3 feet of water in the pool throughout the summer and fall. Plans to draw Hepi Lake down again in 1997 make it important to try and leave water in 7A. North American Wetlands Conservation Council (NAWCC) funds and flood damage monies will be used to repair Pool 5 dike, Pool 3A and Hepi Lake north outlet.

Pool 8 (Hepi Lake): Initially 5-6 feet of water will be needed to supply Pools 7A, 7, 6, 5A, 3A, and 2A downstream. In order to accomplish this the north outlet will need to be temporarily plugged to allow Hepi to fill to the needed level. Hepi Lake will be drawn down in late summer (by removing the temporary plug) to repair north outlet using NAWCC funds.

Pool 9: Pool 9 will receive water from Hepi Lake in late summer for expected construction.

Pool 10: Lower to a depth of 2½ feet. It should be allowed to go dry by late August to maintain its highest use as a semi-permanent wetland.

Pool 11 (West White Lake): Maintain depth at 4-4½ feet to slow cattail invasion. If necessary pump water to Pool 12 to keep from flooding County Road 5.

Pool 12 (East White Lake): Add no water to this pool unless there is a need to pump water from Pool 11 to protect County Road #5. Allow gradual drying to reestablish cattails.

Pool 13 (Mann Lake): Maintain at 4 -5 feet, will need to reduce current level (5-7 ft). Pool is currently above optimum operating level. If possible reduce water level to allow for emergent vegetation growth.

Pool 14 (Sprague Lake): Maintain maximum pool, about 8½ to 9 feet in order to maintain the sport fishery.

Pool 16 (Horseshoe Slough): Pools are at maximum level, no water is needed in the system. Once the Wild Rice River recedes lower Pool A to repair Banish "J" dike.

5. Location Map

Please see attached Refuge Map on which all management pools are marked.

Submitted By: Ad. M. Adams
Refuge Manager

Date: 3/6/97

Reviewed By: Ron Shupe

Date: 3/10/97

Approved By: Phil Zed

Date: 3/11/97

Concurrence: Cheryl Williams

Date: 8-7-97

Attachments

TEWAUKON NATIONAL WILDLIFE REFUGE
Pools, Elevations and Acres

Pool No. & Name	Max. elevation (msl)	1985 Acres	1996 Acres *	1996 Volume (acre ft.) *
Pool 1 - Tewaukon	1149	1015	1067.77	9366.92
- Parker's Bay	1149	95	90.30	371.36
Pool 2 - Cutler's Marsh	1152	246	267.98	1341.26
Pool 2A	1152	30	24.19	45.84
Pool 3 - Maka Pool	1156	125	134.14	500.02
Pool 3A	1156	18	15.46	33.57
Pool 4 - River Pool	1159	108	102.36	217.00
Pool 5	1160	6	3.34	6.39
Pool 5A	1164	5	9.30	15.97
Pool 6	1169	6	8.46	20.99
Pool 7	1174	21	21.64	58.52
Pool 7A	1178	106	88.88	228.29
Pool 8 - Hepi Lake	1179	106	109.86	882.89
Pool 9	1167	10	11.75	46.77
Pool 10	1173	5.5	4.57	6.66
Pool 11 - West White Lake	1151	80	86.62	254.87
Pool 12 - East White Lake	1147	103	97.75	389.62
Pool 13 - Mann Lake	1207	57		
Pool 14 - Sprague Lake	1209	186		
Pool 16 - Horseshoe Slough		244		
- Pool 1 (A Pool)	1210	119.7		
- Pool 2 (B Pool)	1206	42.5		
- Pool 3 (C Pool)	1206	10.3		
- Pool 4 (B West)	1206	+30.3		
- Pool 5 (B North)	1206	24.5		
- Pool 6 (C North)	1206	+2.8		
- Pool 7 (C South & C East)	1206	14.5		

* 1996 Pool acreages and volumes were calculated from information gathered during recently completed surveys of pool depths which were mapped for refuge management purposes.

WATER USE REPORT/MANAGEMENT PLAN SHORT FORM

Lake Elsie NWR, Richland County
Station Name

Summer, 1996 (date not recorded)
Date Of Inspection

Declaration of Filing: 8/30/37
Water Right No.

Considerable local runoff, at least two drainage
Source(s) ditches, springs

Several
(522 acre-feet storage)
(900 acre-feet seasonal)

Means of Diversion None
Rate

Water Diverted: Yes ☐ No ☒

Water Level 522 acre-feet
(Elevation or Est. Storage Amount)

*Impoundment(s): Yes ☐ No ☒

*Well(s):
Free Flowing none-known gpm
Pumped _____ gpm

Type of Use:
Surface Irrigation _____
(Crop) _____
Fish & Wildlife XX
Stock _____
Domestic _____
Other high public use: swimming, water skiing,
fishing

Overall Climatic Conditions:

Condition of Facilities: No facilities present.

Proposed Water Program: County Commissioners and Water Board are looking for solutions to maintain the lake level. They have created an outlet (dug ditch) through Murphy Slough (FWS easement) & Dump Slough (off our easements) to stabilize the lake. Service has agreed to the stabilization provided that the North Dakota Game and Fish approve the water level for fishery purposes. No water management capability is currently present. At maximum the lake spills north from Murphy Slough through a culvert. In 1992 the Fish and Wildlife Service proposed to divest of the wildlife conservation and demonstration due to the current recreational use. The proposal indicated that we would still maintain the water right.

Comments: The lake is an extremely popular summer recreational area. The Richland County Commissioners, Richland County Wildlife Club and the North Dakota Game and Fish are looking at a project that would include raising the bridge and county road, provide a fishing bridge, build a carp trapping area and the possibility of a walleye rearing pond.

Sandra M. Siekaniec
Sandra M. Siekaniec, Refuge Manager

3/6/97
Date

*If more than one impoundment or well, please attach additional sheet.

WATER USE REPORT/MANAGEMENT PLAN SHORT FORM


<u>Storm Lake NWR, Sargent County</u> Station Name	<u>Summer, 1996</u> Date Of Inspection
<u>Declaration of Filing: 8/30/37</u> Water Right No.	<u>Drainage ditch (legal)</u> Source(s)
Several (522 acre-feet storage) (900 acre-feet seasonal)	Means of Diversion <u>Uncontrolled</u> Rate <u>Unknown</u>
Water Diverted: Yes <u> </u> No <u>X</u>	Water Level <u>est 654 acre-feet</u> (Elevation or Est. Storage Amount)
*Impoundment(s): Yes <u> </u> No <u>X</u>	
*Well(s): Free Flowing <u>none</u> gpm Pumped <u> </u> gpm	Type of Use: Surface Irrigation <u> </u> (Crop) <u> </u> Fish & Wildlife <u>X</u> Virtually no public use Stock <u> </u> Domestic <u> </u> Other <u> </u>

Overall Climatic Conditions: 1996 was an extremely wet year. The golf course flooded and the legal drain and diversion ditch maintained the lake level only after the snow and ice melted.

Condition of Facilities: A diversion dam at the head of the feed ditch serving Storm Lake washed out well before 1976. Apparently someone decided it wasn't worth repairing.

Proposed Water Program: No water management capability is present. Water runs down the ditch into the lake to an unknown degree each spring. Water did fill Storm Lake in 1993.

Comments: The lake serves as an excellent waterfowl loafing sanctuary with good use by snow geese, canvasbacks, redheads, lesser scaup, and tundra swans. Water levels fluctuate on their own. If active management was initiated, some degree of improvement might be gained by a cycle of drawdown management. It is questionable if the benefits would be worth the costs for Storm Lake alone. However, when you look at the other three wetlands to the south we should continue to work with Ducks Unlimited and put the Mini Joint Venture back on tract. The Golf Course Association of Milnor which at one time requested lake water to irrigate portions of the Storm Lake Golf Course has found a well water source. The Association was granted a conditional water right, junior to that of the FWS. The Golf Course Association is now looking into doing some new landscaping and has contacted us about the possibility of doing some cosmetic changes on the feeder ditch.

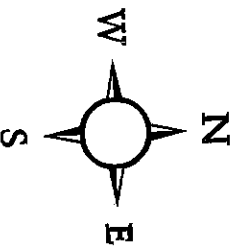

 Sandra M. Siekaniec, Refuge Manager

3/6/97
 Date

*If more than one impoundment or well, please attach additional sheet.

Tewaukon

National Wildlife Refuge



County Road 10
2.5 Miles

- Refuge Visitor Center
- Scenic Overlook
- Picnic Area
- Boat Ramp
- Accessible Rest Room
- Shelter, and Fishing Dock
- Refuge Boundary

LEGEND

- Easement Refuge
- County Roads
- Refuge Trails (Trails west of County Road 12 only open with permission of Refuge Manager)
- Closed to Hunting
- Waterfowl Production Area (WPA)
- North Dakota State Wildlife Management Area

Scale in Miles:
0 1/4 1/2 3/4 1

